

## REMARKS

This is intended as a full and complete response to the Office Action dated June 15, 2009.

### Claims Rejections Under 35 U.S.C. § 112

In view of the cancellation of claims 7 and 8 and amendment to claim 31 withdrawal of this §112 ground of rejection is requested.

### Claim Rejections Under 35 U.S.C. §103

Claims 1-12, 18, 19, 22-24, 26, 28, 30, 31, and 33-36 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bodnar (US 5,143,945) in view of Scherbel (US 5,688,835) and in further view of Fishback (US 5,523,333). In view of the amendments herein and remarks below, reconsideration of this ground rejection is requested.

Claim 1 has been amended to include the subject matter of claim 5 regarding functionalisation of the carboxylic acid. Namely, the carboxylic acid is functionalized with at least one SH, NH<sub>2</sub>, NHR, NO<sub>2</sub> or halogen functional group and R is an alkyl, cycloalkyl or aryl group.

In the Office action, the Examiner acknowledges that Bodnar does not disclose a carboxylic acid having such functionality. As such, he relied on Fishback as disclosing amine-group containing carboxylic acids such as anthranilic acid as an acceptable functionally equivalent carboxylic acid blowing agent in making rigid foams. Anthranilic acid has the formula of C<sub>6</sub>H<sub>4</sub>(NH<sub>2</sub>)(COOH) where the carbonyl group is attached to the aromatic ring. But Bodnar teaches away from using carboxylic acids where the carboxylic acid group is attached to an aromatic carbon atom. 2:44-46. Thus, one of ordinary skill looking at Bodnar and Fishback would not be motivated to use anthranilic acid as a blowing agent in Bodnar's preparations, and because Bodnar does not explain why such carboxylic acids are excluded, that person would not expect to succeed. For at least this reason, independent claim 1 and claims dependent thereon are distinguished over Bodnar in view of Fishback.

Furthermore, Bodnar's blowing agent component also includes a halocarbon blowing agent. This is because rigid foams blown with carboxylic acids or combinations of an acid and water do not have the same superior physical properties, such as thermal insulation, as those made without a fluorocarbon blowing agent. *See, e.g.*, 2:13-37. To avoid inferior physical properties, all of Bodnar's blowing agent mixtures require some amount of halocarbon that is partially or fully substituted by halogen atoms. *Id.* Thus, Bodnar does not teach or suggest a

blowing agent selected from the group consisting of alkanes, alkenes, and cycloalkanes each having from 4 to 8 carbon atoms.

It is respectfully submitted that Scherbel does not cure the deficiencies of Bodnar. In the Office action, the Examiner asserts that it would have been obvious for one of ordinary skill in the art to replace the halocarbons of Bodnar with the hydrocarbons of Scherbel (see column 1, lines 40-52 of Scherbel). While Scherbel does indicate that hydrocarbons, cyclopentane in particular, can be used as a blowing agent in rigid polyurethane foams, it is well known that halocarbon blowing agents cannot be simply replaced by hydrocarbon blowing agents. For example, the thermal insulation provided by these two types of blowing agents is different as is the polarity and solubility of these blowing agents. Scherbel acknowledges as much by teaching that foams made with aliphatic pentane have a higher thermal conductivity, and homogeneity and processing problems. 1:51-65. And he discourages replacing a halocarbon with cyclopentane because cyclopentane is expensive, which is a true consideration even in view of environmental benefits. Thus, given the general knowledge of one skilled in the art, Bodnar's commitment to halocarbons, and Scherbel's teaching away, one skilled in the art would be disinclined to make the substitution suggested by the Examiner—it may be cost prohibitive and/or result in foams that do not have good insulation qualities. Accordingly, it is respectfully submitted that claim 1 and claims dependent thereon are also distinguished over the cited art for this additional reason.

Under a similar analysis, withdrawal of the rejection of amended independent claims 28 and 30 and their respective dependent claims is also requested.

#### Conclusion

Having addressed all issues set out in the Office Action, Applicant respectfully submits that the claims are in condition for allowance and respectfully requests that the claims be allowed.

Respectfully submitted,

Date: October 15, 2009



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